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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/995,158	11/27/2001	Lawrence C. Bank	09820.176	9901

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Intellectual Property Department
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EXAMINER	
THOMPSON, CAMIE S	

ART UNIT	PAPER NUMBER
1774	

DATE MAILED: 05/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/995,158	BANK ET AL.	
	Examiner	Art Unit	
	Camie S Thompson	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Amendment filed February 23, 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 19-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 19-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1. Applicant's amendment and accompanying remarks filed February 23, 2004 have been acknowledged.

2. Examiner acknowledges amended claim 1.

3. Examiner acknowledges cancelled claims 14-18.

4. Examiner acknowledges newly added claims 21-34.

5. The rejection of claims 1, 5, 19 and 20 under 35 U.S.C. 103(a) as being unpatentable over Tingley, U.S. Patent Number 5,648,138 in view of Hohman, U.S. Patent Number 5,637,375 is withdrawn due to applicant's argument.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

7. Claims 1-13 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is rendered indefinite because component (d) is not part of the strip but a completely different invention. The structure to which the strip is fastened is a different invention.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-4, 7-11 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Tingley, U.S. Patent Number 5,648,138.

Tingley discloses a wood structural member comprising reinforcing panels (see abstract). Figures 5a, 5b and 5c of the reference disclose embodiments of the reinforcing panels having two types of fibers. A first fiber is arranged parallel to one another and aligned with the longitudinal direction of the panel and the second fiber is arranged between the first type of fibers and a surface as per instant claim 1 (see column 6, lines 29-40). The reference also discloses a first fiber and a fiber mat as an embodiment as per instant claim 4 and 9 (see column 6, lines 54-68). The first fiber can include carbon and fiberglass as per instant claims 1 and 11 (see column 6, lines 29-68). Additionally, the reference discloses that the fibers are embedded in a polymer matrix such as epoxy resin as per instant claims 1 and 11 (see column 7, lines 1 and 2). Figure 5a discloses nondirectional fibers distributed substantially across the strip as per instant claims 3 and 10. It is also shown in the figures of the reference that the parallel fibers are in bundles spaced transversely across the panel and evenly spaced as per instant claims 2, 7 and 8. Column 8, lines 27-30 of the reference disclose that the fiber to resin volume ratio is 60/40 as per instant claim 13.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 1, 6, 12 and 19-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tingley, U.S. Patent Number 5,648,138 in view of Ehansi et al., U.S. Patent Number 5,640,825. Tingley discloses a wood structural member comprising reinforcing panels (see abstract). Figures 5a, 5b and 5c of the reference disclose embodiments of the reinforcing panels having two types of fibers. A first fiber is arranged parallel to one another and aligned with the longitudinal direction of the panel and the second fiber is arranged between the first type of fibers and a surface as per instant claim 1 (see column 6, lines 29-40). The reference also discloses a first fiber and a fiber mat as an embodiment as per instant claims 4, 9, 25 and 30 (see column 6, lines 54-68). The first fiber can include carbon and fiberglass as per instant claims 1, 11 and 32 (see column 6, lines 29-68). Additionally, the reference discloses that the fibers are embedded in a polymer matrix such as epoxy resin as per instant claims 1, 11 and 32 (see column 7, lines 1 and 2). Figure 5a discloses nondirectional fibers distributed substantially across the strip as per instant claims 3, 10, 24 and 31. It is also shown in the figures of the reference that the parallel fibers are in bundles spaced transversely across the panel and evenly spaced as per instant claims 2, 7, 8, 23 and 28-29.

Column 8, lines 27-30 of the reference disclose that the fiber to resin volume ratio is 60/40 as per instant claims 13 and 34. Tingley does not disclose that the strip is flexible and that it is attached to a reinforced structure.

Ehansi discloses a reinforced structure using a composite strap material as per instant claims 1 and 19. Also, the reference discloses that the composite can be in individual strands or in multiple strands that are weaved together to form a substantially flat tape wherein the fibers are oriented in selected ones of longitudinal, transverse and of combinations thereof as per instant claim 1 (see column 2, lines 38-47). Figure 2 of the Ehansi reference discloses that the fasteners are spaced along the length of the strip as per instant claim 22. Additionally, the reference discloses in column 5 that the strap is flexible and can be applied to the contour of the surface as per instant claims 6 and 27. The flexibility of the strip allows it to simplify construction and be used in new designs. Therefore, it would have been obvious to one of ordinary skill in the art to have a composite strip that is flexible so that it can be coiled in to a roll for construction design but yet have external reinforcement. The Tingley reference does not disclose that the parallel fibers are carbon and the nondirectional fibers include glass fibers as per instant claim 12 and 33. Although Ehansi does not specifically disclose that the parallel fibers include glass and carbon fibers and the nondirectional fibers include glass fibers, Ehansi does disclose that glass and carbon fibers are high strength fibers. Therefore, it would have been obvious to one of ordinary skill in the art to use carbon fibers as the parallel fibers and glass fibers and the nondirectional fibers in order to ensure that the reinforced composite has sufficient strength to handle severe loads caused by earthquakes.

Neither Tingley nor Ehansi disclose that the nondirectional fibers have lengths greater than or equal to a distance defined between adjacent parallel continuous fibers. The length of the nondirectional fibers affects the strength of the strip. However, this feature is optimizable. Discovery of optimum values of a result effective variable involves only routine skill in the art in re Boesch, 617 F.2d 272, 205, USPQ 215 (CCPA 1980). Therefore, it would have been obvious to one of ordinary skill in the art to have the nondirectional fibers of the strip be greater than or equal to a distance defined between adjacent parallel continuous fibers in order to have a structure capable of handling large loads.

12. Claims 19 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tingley, U.S. Patent Number 5,648,138 in view of Ehansi et al., U.S. Patent Number 5,640,825 and in further view of Hohman, U.S. Patent Number 5,637,375.

Tingley discloses a wood structural member comprising reinforcing panels (see abstract). Figures 5a, 5b and 5c of the reference disclose embodiments of the reinforcing panels having two types of fibers. A first fiber is arranged parallel to one another and aligned with the longitudinal direction of the panel and the second fiber is arranged between the first type of fibers and a surface as per instant claim 1 (see column 6, lines 29-40). Additionally, the reference discloses that the fibers are embedded in a polymer matrix such as epoxy resin as per instant claims 1, 11 and 32 (see column 7, lines 1 and 2). Tingley does not disclose that the strip is flexible and that it is attached to a reinforced structure. Ehansi discloses a reinforced structure using a composite strap material as per instant claims 1 and 19. Also, the reference discloses that the composite can be in individual strands or in multiple strands that are weaved together to form a substantially flat tape wherein the fibers are oriented in selected ones of longitudinal, transverse and of

combinations thereof as per instant claim 1 (see column 2, lines 38-47). Neither Tingley nor Ehansi disclose that the nondirectional fibers are continuous. Hohman teachers fiber reinforced composite products that comprise a first and second fiber wherein the first fibers are elongated, continuous parallel fibers and the second fiber is continuous and nondirectional as per instant claims 19 and 26. Additionally, Hohman teaches that the parallel fibers extend along the length of the composite (column 3, lines 22-23). The continuous fibers provide strong reinforcement when embedded into a matrix. Therefore, it would have been obvious to one of ordinary skill in the art to have continuous nondirectional fibers in the mat of the strip in order to achieve a strong composite capable of withstanding large loads.

Response to Arguments

13. Applicant's arguments filed February 23, 2004 have been fully considered but they are not persuasive. Applicant argues the rejection of claims 1-13 under 35 U.S.C. 112, second paragraph. Although applicant amended claim 1, the claim remains indefinite. The structure to which the strip is affixed is a different invention and is not part of the strip. Applicant argues that the Tingley reference does not disclose that the nondirectional fibers are embedded. Figure 5a of the Tingley reference discloses parallel fibers (24) and nondirectional fibers (28).). Applicant argues that the nondirectional fibers of the Tingley reference are outside the matrix of the panel. Additionally, the Tingley reference discloses that the nondirectional fibers are encased in the resin encasement (see column 6, lines 43-53).

Applicant argues the manner in which the fibers are prepared (i.e. coating the structure with a resinous matrix). Additionally, applicant argues that the Hohman reference impregnates and

wets the continuous fiber layer and that the Tingley reference does not. Applicant argues that the combination is not proper. Both Tingley and Hohman are drawn to reinforced structural composites, and thus are analogous art. Both Tingley and Hohman have first and second fibers wherein the first fibers are elongated, continuous parallel fibers and the second fiber is continuous and nondirectional. The manner in which the fibers are impregnated or wetted does not stop both references from being analogous in that they are both drawn to reinforced fiber composites. Applicant argues that the fibers of the Tingley panel would be adhered prior to the fibers of the Hohman reference. The Hohman reference is brought in to demonstrate that nondirectional fibers can be continous. With the nondirectional fibers being continuous, additional reinforcement is provided. Also, applicant argues that the Hohman reference does not disclose the use of fasteners. The rejection under Tingley in view of Hohman has been withdrawn. A new rejection under Tingley in view of Ehansi and in further view of Hohman is applied in order to demonstrate that it is conventional in the art to have a reinforced composite that can be affixed to a structure by a series of fasteners. Applicant argues the combination of the Tingley and Ehansi references. Both Tingley and Ehansi disclose fiber-reinforced composites and thus are analogous art. Applicant argues that Ehansi does not provide motivation to incorporate nondirectional fibers. Tingley discloses the use of nondirectional fibers. Ehansi is used to demonstrate the use of a series of fasteners wherein a fiber reinforced strip is affixed to a structure. Ehansi does not specifically discloses that the parallel fibers are carbon or nondirectional fibers. Ehansi does disclose that carbon and glass fibers are high strength fibers. In order to obtain a reinforced composite that is capable of withstanding great loads, it is obvious

to use fibers such as carbon and glass. Additionally, the Ehansi reference is used to show that the strip can be flexible and rolled into a coil.

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly, can be reached at (571) 272-1526. The fax phone number for the Group is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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